

Form PTO-1449 U.S. Department of Commerce (Rev. 8-88) Patent and Trademark Office				Attorney Docket No.: 1201.68148		Serial No.: 10/664,772	
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)				Applicants: Masel et al.		Filing Date: September 17, 2003	
U.S. PATENT DOCUMENTS				Group: 1746			

Examiner Initial*	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
Ony	4,457,986	07/03/1984	Bindra et al.			
	4,493,878	01/15/1985	Horiba et al.			
	5,004,424	04/02/1991	Larminie			
	5,364,711	11/15/1994	Yamada et al.			
	5,393,619	02/28/1995	Mayer et al.			
	5,856,036	01/05/1999	Smotkin et al.			
	5,904,740	05/18/1999	Davis et al.			
	6,020,083	02/01/2000	Breault et al			
	6,248,460	07/19/2001	Surampudi et al.			
	6,387,557	05/14/2002	Krasij et al.			
	6,432,284	08/13/2002	Narayanan et al.			
	6,447,941	09/10/2002	Tomimatsu et al.			
	6,458,479	10/01/2002	Ren et al.			
	6,492,052	12/10/2002	Ren			
	6,495,278	10/01/2002	Schmid et al.			
Ony	6,533,827	04/19/2003	Cisar et al.			

FOREIGN PATENT DOCUMENTS							
	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
Ony	JP-01227361A	Sept. 11, 1989	Japan			Abs	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	
Ony	Weber, M.; Wang, J.T.; Wasmus, S; Savinell, R.F.; "Formic Acid Oxidation in a Polymer Electrolyte Fuel Cell: A Real-Time Mass-Spectrometry Study," J. Electrochem. Soc., 1996, 143(7), L158-L160.
Ony	M. Watanabe, "Electrocatalysis By Ad-Atoms, Part XIII. Preparation of Ad-Electrodes with Tin Ad-Atoms for Methanol, Formaldehyde and Formic Acid Fuel Cells", J. Electroanal. Chem, 191, December 1985, p. 367-375
Ony	M. Watanabe, "Electrocatalysis By Ad-Atoms, Part XXIII. Design of Platinum Ad-Electrodes for Formic Acid Fuel Cells with Ad-Atoms of the IVth and the Vth Groups," J. Electroanal. Chem, 250, February 1988, p. 117-125
<div style="display: flex; justify-content: space-between;"> Examiner <i>Debra</i> Date Considered <i>4/17/06</i> </div>	

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U.S. PATENT DOCUMENTS

Examiner Initial*	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
<i>ony</i>	3,297,487	01/10/1967	Pomeroy et al.			
	3,506,494	04/14/1970	Adlhart			
	3,711,385	01/16/1973	Beer			
	4,039,409	08/02/1977	LaConti et al.			
	4,081,409	03/28/1978	McNicol et al.			
	4,127,468	11/28/1978	Alfenaar et al.			
	4,431,750	02/14/1984	McGinnis et al.			
	4,447,506	05/08/1984	Luczak et al.			
	4,457,823	07/03/1984	LaConti et al.			
	4,478,917	10/23/1984	Fujita et al.			
	4,797,380	01/10/1989	Motoo et al.			
	4,806,515	02/21/1989	Luczak et al.			
	4,822,699	04/18/1989	Wan et al.			
	5,024,905	06/18/1991	Itoh et al.			
	5,096,866	03/17/1992	Itoh et al.			
	5,183,713	02/02/1993	Kunz			
	5,208,207	5/04/1993	Stonehart et al.			
	5,225,391	07/06/1993	Stonehart et al.			
	5,246,791	09/21/1993	Fisher et al.			
	5,599,638	02/04/1997	Surampudi et al.			
	5,773,162	06/30/1998	Surampudi et al.			
	6,007,934	12/28/1999	Auer et al.			
	6,020,083	02/01/2000	Breault et al.			
	6,146,782	11/14/2000	Wendt et al.			
<i>ony</i>	6,165,635	12/26/2000	Auer et al.			

FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No

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ong	6,284,402	09/04/2001	Mallouk et al.			
	6,326,098	12/04/2001	Itoh et al.			
	6,492,147	12/10/2002	Imamura et al.			
	6,498,121	12/24/2002	Gorer			
	6,517,965	02/11/2003	Gorer			
	6,649,300	11/18/2003	Ito et al.			
	6,660,680	12/09/2003	Hampden-Smith et al.			
	6,670,301	12/30/2003	Adzic et al.			
	6,686,308	02/03/2004	Mao et al.			
	6,723,678	04/20/2004	Gorer			
	6,770,394	08/03/2004	Appleby et al.			
ong	2004/0115518	06/17/2004	Masel et al.			

FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

ong	Papageorgopoulos, D. et al.; "CO Tolerance of Pd Rich Platinum Palladium Carbon Supported Electrocatalysts for PEMFC Applications", <i>Journal of the Electrochemical Society</i> , in press, August 2002, pp. 1-22.
ong	Adzic, R. et al.; "Structural Effects in Electrocatalysis", <i>J. Electroanal. Chem.</i> , 1983, pp. 79-88.
ong	Avramov-Ivic, M. et al.; "The electrocatalytic properties of the oxides of noble metals in the electrooxidation of methanol and formic acid", <i>Electrochimica Acta</i> , 2001, pp. 3175-3180
	Baldauf, M. et al.; "Formic Acid Oxidation on Ultrathin Pd Films on Au(hkl) and Pt(hkl) Electrodes", <i>J. Phys. Chem.</i> , 1996, pp. 11375-11381.
	Becerik, I. et al.; "Electro-oxidation of Formic Acid on Highly Dispersed Platinum and Perchlorate Doped Polypyrrole Electrodes", <i>Journal of The Electrochemical Society</i> , 2001, pp. D49-D54.
	Capon, A. et al.; "The Effect of Strong Acid on the Reactions of Hydrogen And Oxygen on the Noble Metals a Study Using Cyclic Voltammetry and a New Teflon Electrode Holder", <i>Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1972, pp. 275-286.
	Capon, A. et al.; "The Oxidation of Formic Acid on Noble Metal Electrodes II. A Comparison Of the Behaviour of Pure Electrodes", <i>Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1973, pp. 239-254.
ong	Capon, A. et al.; "The Oxidation of Formic Acid on Noble Metal Electrodes III. Intermediates and Mechanism on Platinum Electrodes", <i>Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1973, pp. 205-231.

Examiner

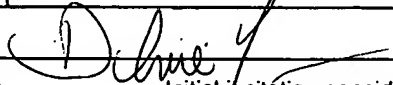
Date Considered

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	Capon, A. et al.; "The Oxidation of Formic Acid on Noble Metal Electrodes IV. Platinum and Palladium Electrodes", <i>Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1975, pp. 285-305.						
	Chi, N. et al.; "Electrocatalytic oxidation of formic acid by Pt/Co nanoparticles", <i>Catalysis Letters</i> Vol. 71, No. 1-2, 2001, pp. 21-26.						
	Clavilier, J. et al.; "Heterogeneous electrocatalysis on well defined platinum surfaces modified by controlled amounts of irreversibly absorbed adatoms", <i>J. Electroanal. Chem.</i> , 1989, pp. 89-100.						
	Climent, V. et al.; "Electrocatalysis of formic acid and CO oxidation on antimony-modified Pt(111) electrodes", <i>Electrochimica Chemistry</i> , 1993, pp. 1403-1414.						
	El-Shafei, A. et al.; "Electrocatalytic oxidation of formic acid on Pt binary and ternary electrodes in H ₃ PO ₄ ", <i>Journal of Electroanalytical Chemistry</i> , 1993, pp. 159-165.						
	El-Shafei, A.; "Study of nickel upd at a polycrystalline Pt electrode and its influence on HCOOH oxidation in acidic and nearly neutral media", <i>Journal of electroanalytical Chemistry</i> , 1998, pp. 81-89.						
	Fernandez-Vega, A. et al.; "Heterogeneous electrocatalysis on well defined platinum surfaces modified by controlled amounts of irreversibly absorbed adatoms", <i>J. Electroanal. Chem.</i> , 1989, pp. 101-113.						
	Gonzalez, M.J. et al.; "Electrocatalytic Oxidation of Small Carbohydrate Fuels at Pt-Sn Modified Electrodes", <i>J. Phys. Chem.</i> 1998, pp. 9881-9890.						
	Ha, S. et al.; "A miniature air breathing direct formic acid fuel cell", <i>Journal of Power Sources</i> , 2004, pp. 119-124						
	Ha, S. et al.; "Methanol conditioning for improved performance of formic acid fuel cells", <i>Journal of Power Sources</i> , 2002, pp. 655-659.						
	Harmsen, J. et al.; "Kinetic modeling for wet air oxidation of formic acid on a carbon supported platinum catalyst", <i>Applied Catalysis</i> , 1997, pp. 499-509.						
	Hartung, T. et al.; "Catalytic Effects of Hg and Ti Submonolayers on the Electrooxidation of Formic Acid on Pt", <i>J. Electroanal. Chem.</i> , 1986, pp. 135-149.						
	Herrero, E. et al.; "Oxidation of formic acid on Pt(111) electrodes modified by irreversibly absorbed tellurium", <i>Journal of Electroanalytical Chemistry</i> , 1995, pp. 161-167.						
	Herrero, E. et al.; "Oxidation of formic acid on Pt(100) electrodes modified by irreversibly absorbed tellurium", <i>Journal of Electroanalytical Chemistry</i> , 1995, pp. 145-154.						
	Jiang, J. et al.; "Nanostructured platinum as an electrocatalyst for the electrooxidation of formic acid", <i>Journal of Electroanalytical Chemistry</i> , 2002, pp. 64-70.						
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
Dmy	Beden, B. et al.; "Electrocatalytic Activity of Noble Metals for the Oxidation of Formate in Neutral Medium", <i>J. Electroanal. Chem.</i> , 1979, pp. 127-131.						
	Llorca, M. et al.; "Formic acid oxidation on Pd _{ad} + Pt(100) and Pd _{ad} + Pt(111) electrodes", <i>Journal of Electroanalytical Chemistry</i> , 1994, pp. 151-160.						
	Llorca, M. et al.; "Formic acid oxidation on Pt(111) electrodes modified by irreversibly absorbed selenium", <i>Journal of electroanalytical Chemistry</i> , 1994, pp. 217-225.						
	McGovern, M. et al.; "Effects of Nafion as a binding agent for unsupported nanoparticle catalysts", <i>Journal of Power Sources</i> , 2003, pp. 35-39.						
	Shen, P. et al.; "Performance of CO-electrodeposited Pt-Ru/WO ₃ electrodes for the electrooxidation of formic acid at room temperature", <i>Journal of Electroanalytical Chemistry</i> , 1995, pp. 223-225.						
	Waszczuk, P. et al.; "A nanoparticle catalyst with superior activity for electrooxidation of formic acid", <i>Electrochemistry Communications</i> , 2002, pp. 599-603						
	Rhee, Y. et al.; "Crossover of formic acid through Nafion® membranes", <i>Journal of Power Sources</i> , 2003, pp. 35-38.						
	Pron'kin, S. et al.; "Nanoparticle of Pt hydrosol immobilized on Au support: an approach to the study of structural effects in electrocatalysis", <i>Electrochimica Acta</i> , 2001, pp. 2343-2351.						
	Rice, C. et al.; "Catalysts for direct formic acid fuel cells", <i>Journal of Power Sources</i> , 2003, pp. 229-235.						
	Rice, C. et al.; "Direct formic acid fuel cells", <i>Journal of Power Sources</i> , 2002, pp. 83-89.						
	Gasteiger, H. et al.; "Electro-Oxidation of Small Organic Molecules on Well-Characterized Pt-Ru Alloys", <i>Electrochimica Acta</i> , Vol. 39, No. 11/12, 1994, pp. 1825-1832.						
	Smith, S. et al.; "Structural effects on the oxidation of HCOOH by bismuth modified Pt(111) electrodes with (110) manatomic steps", <i>Journal of Electroanalytical Chemistry</i> , 1999, pp. 43-49.						
	Shibata, M. et al.; "Electrocatalysis by Ad-Atoms" Part XXII.: S _{hole} Control By Ad-Atoms on HCOOH Oxidation, <i>J. Electroanal. Chem.</i> , 1988, pp. 253-264.						
Dmy	Chen, M. et al.; "Enhancement of the electrochemical oxidation of formic acid. Effects of anion absorption and variation of rotation rate", <i>Electrochimica Acta</i> , 2001, pp. 3481-3492.						
Examiner				Date Considered 4/17/06			
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						Yes	No
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
Duf	Beltowska-Brzezinska M. et al.; "The Influence of Upd-Lead on the Absorption of Formaldehyde, Formic Acid and Methanol on Pt In Acid Solution", <i>Electrochimica Acta</i> , Vol. 30, No. 11, 1985, pp. 1465-1471.						
	Xia, X.; "New insights into the influence of upd Sn on the oxidation of formic acid on platinum in acidic solution", <i>Electrochimica Acta</i> , 1999, pp. 1057-1066.						
	Xiang, J. et al.; "Investigation of the mechanism of the electrochemical oxidation of formic acid at a gold electrode in sulfuric acid solution", <i>Journal of Electroanalytical Chemistry</i> , 2001, pp. 95-100.						
	Yang, Y. et al.; "Surface modification and electrocatalytic properties of Pt(100), Pt(110), Pt(320) and Pt(331) electrodes with Sb towards HCOOH oxidation", <i>Electrochimica Acta</i> , 2001, pp. 4339-4348.						
	Sobkowski, J. et al.; "The Behaviour of Formic Acid on a Rhodium Electrode", <i>J. Electroanal. Chem.</i> , 1978, pp. 309-320.						
	Zhang, X. et al.; "Electrocatalytic Oxidation of Formic Acid on Ultrafine Palladium Particles Supported on a Glassy Carbon", <i>Electrochimica Acta</i> , Vol. 40, No. 12, 1995, pp. 1889-1897.						
	Zhu, Y. et al.; "High power density direct formic acid fuel cells", <i>Journal of Power Sources</i> , 2004, pp. 8-14.						
	Guo-Qiang Lu, Alechia Crown, and Andrzej Wieckowski, "Formic Acid Decomposition on Polycrystalline Platinum and Palladized Platinum Electrodes," <i>J. Phys. Chem. B</i> 1999, 103, pp. 9700-9711.						
	P. Waszczuk, J. Solla-Gullón, H.S. Kim, Y.Y. Tong, V. Montiel, A. Aldaz, and A. Wieckowski, "Methanol Electrooxidation on Platinum/Ruthenium Nanoparticle Catalysts," <i>Journal of Catalysis</i> 203, pp. 1-6 (2001).						
	Gdowski, G.E.; Fai, J.A.; Maxid, R.J.; Reactive Scattering of Small Molecules from Platinum Crystal Surfaces: D ₂ CO, CH ₃ , CH ₃ OH, HCOOH and the Nonanomalous Kinetics of Hydrogen Atom Recombination, <i>Surf. Sci.</i> , 1983, 127(3) 541-54.						
	A. Wieckowski and R. I. Masel, "UHV and electrochemical studies of CO and methanol adsorbed at platinum/ruthenium surfaces, and reference to fuel cell catalysis," <i>Electrochimica Acta</i> 47, 22-23, 3637-3652 (2002).						
	N. Markovic, H. Gasteiger, P. Ross, X. Jiang, I. Villegas and M. Weaver, "Electro-oxidation mechanisms of methanol and formic acid on Pt-Ru alloy surfaces," <i>Electrochimica Acta</i> , 40, 91-98, (1995).						
	M. Arenz, V. Stamenkovic, T. J. Schmidt, K. Wandelt, P. N. Ross and N. M. Markovic, "The electro-oxidation of formic acid on Pt Pd single crystal bimetallic surfaces," <i>Physical Chemistry Chemical Physics</i> , 5, 4242, (2003).						
	N. Watanabe, K. Iwatsu, A. Yamakata, T. Ohtani, J. Kubota, J. N. Kondo, A. Wada, K. Domen and C. Hirose, "SFG study of formic acid on a Pt(110)-(1x2) surface," <i>Surf. Sci.</i> , 651, 357-358, (1996).						
	S. W. Jorgensen and R. J. Madix, "Active oxygen on Group VIII metals: activation of formic acid and formaldehyde on Pd(100)," <i>J. Am. Chem. Soc.</i> , 110, 397, (1988).						
	F. Solymosi and I. Kovacs, "Adsorption and reaction of HCOOH on K-promoted Pd(100) surfaces," <i>Surf. Sci.</i> , 259, 95, (1991).						
Duf	C. Xu and D. W. Goodman, "Adsorption and Reaction of Formic Acid on a Pseudomorphic Palladium Monolayer on Mo(110)," <i>J. Phys. Chem.</i> , 100, 245, (1996).						
Examiner	Date Considered			4/17/06			
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